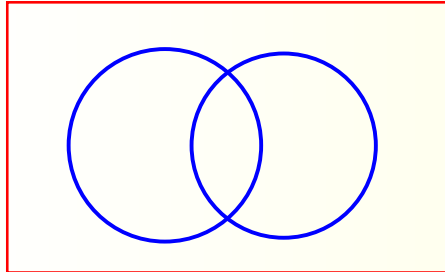


Warm Up # 9-3

A golf team has 32 members. 12 also play tennis, 24 like to draw, and 6 don't play tennis or draw.

1. Create a Venn Diagram
2. Find the # of members who:



a) like to draw and play tennis

b) play tennis, but don't like to draw

HW Questions: p. 280

- 3** A die has 4 faces showing A, and 2 faces showing B. Jar A contains 3 red and 2 green tickets. Jar B contains 3 red and 7 green tickets. A roll of the die is used to select either jar A or jar B. Once a jar has been selected, two tickets are randomly selected from it without replacement. Determine the probability that:

a both are green

b they are different in colour.

$$\begin{aligned}
 & P(ARG) + P(AGR) + P(BRG) + P(BGR) \\
 & \frac{4}{6} \cdot \frac{3}{5} \cdot \frac{2}{4} + \frac{4}{6} \cdot \frac{2}{5} \cdot \frac{3}{4} + \frac{2}{6} \cdot \frac{3}{10} \cdot \frac{7}{9} + \frac{2}{6} \cdot \frac{7}{10} \cdot \frac{3}{9} \\
 & \frac{9}{9} \cdot 2\left(\frac{1}{5}\right) + 2\left(\frac{7}{90}\right) \\
 & \frac{25}{45} \\
 & \boxed{\frac{5}{9}}
 \end{aligned}$$

- 4 Marie has a bag of sweets which are all identical in shape. The bag contains 6 orange drops and 4 lemon drops. She selects one sweet at random, eats it, and then takes another at random.
- a Determine the probability that:
- i both sweets are orange drops
 - ii both sweets are lemon drops
 - iii the first is an orange drop and the second is a lemon drop
 - iv the first is a lemon drop and the second is an orange drop.
- b Add your answers in a. Explain why the total must be 1.

- 5 A bag contains four red and two blue marbles. Three marbles are selected simultaneously. Determine the probability that:

- a all are red b only two are red c at least two are red.

$$\frac{4R}{2B} \quad \text{a) } P(RRR) = \frac{4}{6} \cdot \frac{3}{5} \cdot \frac{2}{4} = \frac{1}{5}$$

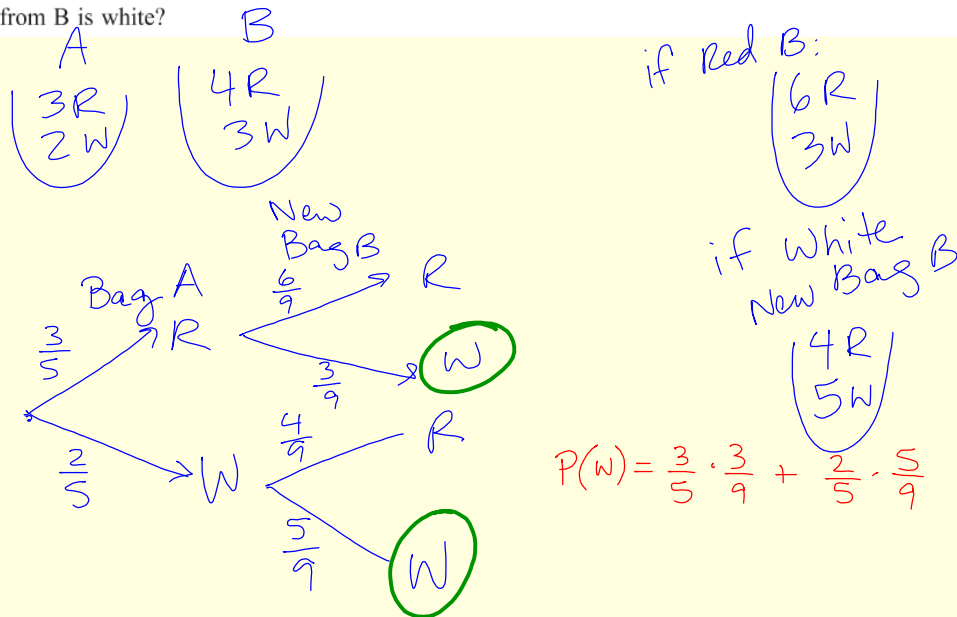
$$\text{b) } P(RRB) + P(RBR) + P(BRR)$$

$$\frac{4}{6} \cdot \frac{3}{5} \cdot \frac{2}{4} + \frac{4}{6} \cdot \frac{2}{5} \cdot \frac{3}{4} + \frac{2}{6} \cdot \frac{4}{5} \cdot \frac{3}{4}$$

$$3\left(\frac{1}{5}\right) = \boxed{\frac{3}{5}}$$

c)

- 6 Bag A contains 3 red and 2 white marbles. Bag B contains 4 red and 3 white marbles. One marble is randomly selected from A and its colour noted. If it is red, 2 reds are added to B. If it is white, 2 whites are added to B. A marble is then selected from B. What is the chance that the marble selected from B is white?



- 7 A man holds two tickets in a 100-ticket lottery in which there are two winning tickets. If no replacement occurs, determine the probability that he will win:

☒ a both prizes

☐ b neither prize

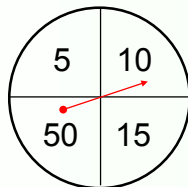
☒ c at least one prize.

$$P(LL) = \frac{4753}{4950} \quad 1 - P(LL)$$

$$P(WW) = \frac{2}{100} \cdot \frac{1}{99}$$

- 8 A container holds 3 red, 7 white, and 2 black balls. A ball is chosen at random from the container and is not replaced. A second ball is then chosen. Find the probability of choosing one white and one black ball in any order.

Expected Value = The average value expected from the experiment.



points

What is the average # of points we would expect per spin?

Probability of each region?

$$\frac{1}{4}$$

How many points would I expect to get in 4 spins? $\rightarrow 5 + 10 + 50 + 15 = 80$

Average # of points? $\frac{80}{4} = 20 \text{ pts. per spin}$

Let x = # of magazines purchased by a single customer in one week.

Let p = percentage of customers who buy x # of magazines in one week.

X	1	2	3	4	5
P(X)	0.23	0.38	0.21	0.13	0.05

Expected Value = *avg # of magazines bought by one customer in one week.*

$$\sum x_i p_i$$

$$= 1(0.23) + 2(0.38) + 3(0.21) + 4(0.13) + 5(0.05)$$

$$= 2.39$$

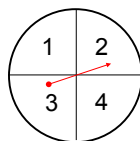
A game is "fair" when what you can expect to win equals what you paid to play.

Vocabulary

Expected Return = Expected Winnings

Expected Gain = Expected Return - cost to play

Is this a fair game?



cost = \$5

X	1	2	3	4
\$ win	\$1	\$2	\$5	\$8
P(X)	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

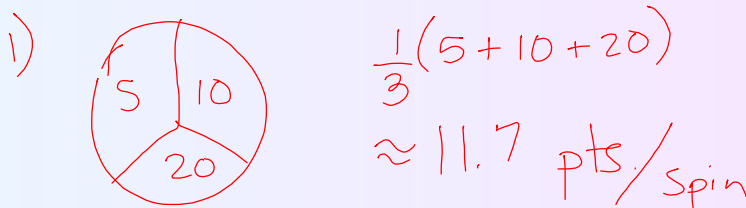
$$\begin{aligned} \text{Expected Return (Expected Winnings)} &= \frac{1}{4}(\$1) + \frac{1}{4}(\$2) + \frac{1}{4}(\$5) + \frac{1}{4}(\$8) \\ &= \frac{1}{4}(1 + 2 + 5 + 8) \\ &= \$4 \end{aligned}$$

$$\begin{aligned} \text{Expected Gain} &= 4 - 5 \\ &= -\$1 \end{aligned}$$

Classwork:

9G.2 p. 283, # 1 - 3

9G.3 p. 284, # 1 & 3



HW: 9G.2 p. 284, # 4 & 5

9G.3 p. 285, # 4 - 6

Next test: Friday, Nov. 3

Sets, Venn Diagrams and
Probability

